REMARKS

Claims 1-13 are now pending in this application. Claims 1, 4, and 11-13 have been amended to define still more clearly what Applicant regards as his invention. Claims 1 and 11-13 are independent.

Claims 1-5 and 7-13 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 5,969,764 to Sun et al. Claim 6 was rejected under 35 U.S.C. § 103(a) as being obvious from Sun et al. in view of U.S. Patent 6,415,057 to Suzuki et al.

As explained in more detail in the specification, the present invention relates to image processing and, in particular, to encoding plural objects included in an image. In prior art systems, it has been very difficult or even impossible to set an optimum code amount for each object relative to a target code amount in the entire system. For example, in an image that contains a rocket and a person, if a target code amount of the person is set low and therefore the rocket and the background are high, the image of the person will blur and the rest of the image will not. If a lot of codes are allocated to the person and the rocket, the image quality of the background will deteriorate. It has been very difficult in practice to achieve a good balance in setting target code amounts for each object.

Claim 1 is directed to an image processing apparatus including inputting means, encoding means, setting means, and control means. The inputting means inputs image data of plural objects, and the encoding means encodes, with an encoding parameter, the inputted image data, on an object basis. The setting means sets a priority order of code amount allocation for each of the objects, and the control means controls the encoding

parameter of the object having a lowest priority order among the objects having the priority order set by the setting means, when a total code amount obtained by encoding the image data of the plural objects exceeds a predetermined code amount.

One notable feature of Claim 1 is controlling the encoding parameter of the object having the lowest priority order when the total code amount obtained by encoding the image data of the objects exceeds a predetermined code amount. By virtue of this feature, some degree of imaging quality can, if necessary, be sacrificed in the portion of the image where image quality is least critical. Support for this feature is found in the originally filed application, at least in Figs. 13 and 20, elements 13, 14, 23, and 24.[1/]

Sun et al., as understood by Applicant, relates to a method which adaptively encodes a sequence of frames including video objects to provide a compressed video signal. The encoding is via a buffer having a variable input rate and a constant output rate. The encoding uses a discrete cosine transform to produce coefficients that are quantized to generate image-representative code bits at a variable rate and texture, and motion and shape information for each video object stored in the buffer. The content of the buffer is restricted by adjusting quantization parameters with respect to a reference value and a quadratic rate distortion model to increase or decrease the number of bits stored in the buffer. Furthermore, the target number of bits for encoding each video object is estimated in accordance with a function of relative motion and size. The encoding bit rate is set to avoid buffer overflow.

1/It is of course to be understood that the references to various portions of the present application are by way of illustration and example only, and that the claims are not limited by the details shown in the portions referred to.

Sun et al. discusses assigning a code amount in accordance with the size of an object. In Sun et al., bits are redistributed so that "consistent quality is maintained across different objects" (see column 6, lines 56-60, and column 9, cited in the Office Action). When the total code amount exceeds a predetermined code amount, the same assignment of a code amount is executed. That is, Sun et al. always controls the code amount of each object. Sun et al. fails to teach or suggest controlling an encoding parameter of an object having a lowest priority order among objects having the priority order set by setting means, when a total code amount for the objects exceeds a predetermined code amount, as recited in Claim 1. That is, Sun et al. fails to teach or suggest the control means of Claim 1 functioning together with the setting means of Claim 1.

Accordingly, Claim 1 is believed to be clearly allowable over Sun et al.

Independent Claims 11-13 correspond to Claim 1, and are believed to be patentable for the same reasons as discussed above in connection with Claim 1.

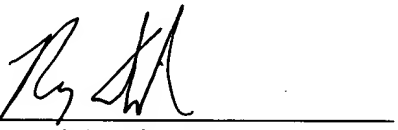
A review of the other art of record, including Suzuki et al., has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from Claim 1 discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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